

## ABSTRACTS OF CARDIOLOGY

### Physiological Studies in Congenital Heart Disease.

**I. Procedures.** R. J. BING, L. D. VANDAM, and F. D. GRAY. *Bull. Johns Hopk. Hosp.*, 80, 107-120, Feb., 1947.

The technical aspects of physiological studies of cases of congenital heart disease are described. The procedures and formulæ mentioned are those dealing with the measurement of blood flow in the pulmonary artery, systemic circulation, pulmonary capillary bed, and intracardiac shunts. In all, 14 formulæ are presented, including one for measuring the peripheral resistance. The techniques used involve the evaluation of oxygen and carbon dioxide in arterial and venous blood and also in blood collected by intracardiac catheterization, together with determination of the rates of oxygen consumption and carbon dioxide elimination by indirect calorimetry.

[This paper cannot easily be abstracted, and those interested in the subject are advised to consult the original communication.]

A. I. Suhecki

### Physiological Studies in Congenital Heart Disease.

**II. Results of Preoperative Studies in Patients with Tetralogy of Fallot.** R. J. BING, L. D. VANDAM, and F. D. GRAY. *Bull. Johns Hopk. Hosp.*, 80, 121-141, Feb., 1947.

This paper deals with results of pre-operative studies on patients with cardiac abnormalities and in whom a reduced pulmonary blood flow is an important feature. Altogether 120 patients with the tetralogy of Fallot have been investigated. Here there is an intracardiac shunt from right to left. However, there may be some concomitant flow from left to right, as indicated by a higher oxygen content of right ventricular blood as compared with that of the right auricle. In some cases both systemic and pulmonary artery flows are equally reduced below normal values: the intracardiac shunt is negligible and the aorta rises chiefly from the left ventricle. With varying degrees of pulmonary stenosis and ventricular septal defect, the systemic blood flow depends to a large extent on the importance of the intracardiac shunt. The total pulmonary flow (pulmonary capillary flow) approaches closely the volume of pulmonary artery flow normally and rarely in the tetralogy of Fallot, indicating in the latter absence of measurable collateral circulation. In the majority of patients with pulmonary stenosis, however, pulmonary capillary flow exceeds pulmonary artery flow, suggesting the presence of an important collateral circulation to the lungs. In 4 patients with pulmonary stenosis and patent ductus arteriosus the volume of blood flow through the ductus could be determined by measuring the difference between the pulmonary capillary and pulmonary artery flows.

It has been shown directly, by intracardiac catheterization, that the systolic pressure in the right ventricle in cases of the tetralogy is above normal and approximates to the systolic pressure in the systemic circulation. In 8 out of 22 recordings the general level of the ventricular diastolic pressure was also elevated. When the catheter is passed into the stenosed pulmonary artery the pressure falls sharply. In 3 subjects the systolic pressures in the right ventricle and in the aorta were similar.

In the tetralogy of Fallot the oxygen consumption is decreased and this, the authors suggest, is the result of physiological adaptation to chronic anoxia. The decreased metabolic rate may also be due to a poor nutritional status, lack of physical activity, or poor calorie intake. The ratios of oxygen consumed and carbon dioxide produced decreased during the standard exercise test, while the arterial oxygen saturation dropped immediately after the exercise. This exercise test might be of diagnostic help. Finally, the authors stress the interrelationship of venous-arterial shunts and decreased pulmonary blood flow in the production of anoxæmia. The volume of "effective pulmonary blood flow" is the determining factor.

A. I. Suhecki

### Physiological Studies in Congenital Heart Disease. III.

**Results Obtained in Five Cases of Eisenmenger's Complex.** R. J. BING, L. D. VANDAM, and F. D. GRAY. *Bull. Johns Hopk. Hosp.*, 80, 323-347, June, 1947.

Physiological methods have been used to study the circulation in the heart and great vessels in 5 cases of Eisenmenger's complex. Clinically these cases can be distinguished from those of Fallot's tetralogy because the cyanosis and clubbed fingers develop later in life, though breathlessness on exertion is present from childhood. The patient also suffers many hæmoptyses, and a loud systolic murmur is audible over the base of the heart close to the left of the sternum. Radioscopy shows a prominent pulmonary conus, marked vascular root shadows, and expansile pulsations in the lung fields. Such cases are not at present amenable to surgical treatment.

In 4 or 5 such cases exercise was accompanied by a rise in the ratio of oxygen consumed per litre of ventilation, whereas in patients with the tetralogy of Fallot the ratio usually declines. The preponderant shunt of blood was from the left to the right ventricle in 3 cases and from right to left in 2, though in all there was interventricular mixing of blood. The authors believe that there is an increased resistance in the pulmonary bed in these cases, because there was no marked tendency for the blood to flow from left to right and because the pulmonary arterial pressure was increased. The calculated work of the

right ventricle was 30 to 50% of that of the whole heart, whereas it is usually 15% and the ratio velocity energy/total work, when calculated for the right ventricle, was only one-tenth of the normal. It is pointed out that in some cases of septal defects in infants generalized narrowing of the pulmonary arterioles due to thickening of the media and intima has been found, and similar changes have been described in 2 cases of large interauricular septal defect. These post-mortem findings appear to tally with the ante-mortem finding of increased pulmonary vascular resistance.

H. E. Holling

#### Studies of Congenital Heart Disease. I. Technique of Venous Catheterization as a Diagnostic Procedure.

L. DEXTER, F. W. HAYNES, C. S. BURWELL, E. C. EPPINGER, R. E. SEIBEL, and J. M. EVANS. *J. clin. Invest.*, 26, 547-553, May, 1947.

This paper, the first of a series of three, deals with the application of intracardiac catheterization to the study and diagnosis of congenital heart disease. The method described by the investigators is that introduced by Courmand and his associates for the study of hemodynamics. Several samples of blood from the right cardiac chambers and pulmonary artery and vena cava are collected and examined for oxygen content; in addition, blood from the femoral artery and oxygen consumption are studied. The data obtained can be utilized for the calculation of blood flow in patients with congenital heart disease (Fick's formula). The volume of flow through single one-directional shunts may most easily be estimated by calculating the difference between the pulmonary and peripheral flows. The estimation becomes more difficult when double shunts, shunts in both directions, and collateral circulation are present. The authors give details of estimation of the blood pressure in the pulmonary artery, right ventricle, and right auricle. A continuous pressure curve can be recorded during the withdrawal of the catheter from the pulmonary artery through the right cardiac chambers. The method of intracardiac catheterization, as already shown by others, carries no danger. In a few patients ventricular extrasystoles and auricular fibrillation have been noted, but these, as well as a venous spasm occasionally seen, are transient. Of 42 patients, only 1 presented symptoms troublesome enough to require interruption of the procedure.

A. I. Suhecki

#### Studies of Congenital Heart Disease. II. The Pressure and Oxygen Content of Blood in the Right Auricle, Right Ventricle, and Pulmonary Artery in Control Patients, with Observations on the Oxygen Saturation and Source of Pulmonary "Capillary" Blood.

L. DEXTER, F. W. HAYNES, C. S. BURWELL, E. C. EPPINGER, R. P. SAGERSON, and J. M. EVANS. *J. clin. Invest.*, 26, 554-560, May, 1947.

This communication deals solely with results of intracardiac catheterization performed in control patients known to have no congenital cardiac defect. The blood pressures in each chamber have been recorded, and there seems to be little difference between pulmonary artery and right ventricle pressures: this normal finding contrasts

with that in pulmonary stenosis, where the systolic ventricular pressure is clearly higher than that in the pulmonary artery. In some congenital heart conditions, left to right shunt introduces arterial blood into the right chambers, thereby increasing the oxygen content of blood in the latter. What, then, are the normal variations in oxygen content in the right heart? The results in the controls show that the greatest increase in oxygen from the superior vena cava to the right auricle is 1.9 vol.%; from the right auricle to the right ventricle, 0.9 vol.%; and from the right ventricle to the pulmonary artery, 0.5 vol.%. Within each chamber variation of oxygen content occurs; it is minimal in the pulmonary artery. It is suggested by the authors that blood from the pulmonary artery be employed for the determination of oxygen content in mixed venous blood for use in Fick's formula. Lastly, by comparing the oxygen values of a sample of blood obtained through the catheter obstructing a small branch of the pulmonary artery with that from the femoral artery, the investigators have shown that the former blood originates in the pulmonary capillary and venous bed rather than in pre-capillary anastomoses with systemic arteries.

A. I. Suhecki

#### Studies of Congenital Heart Disease. III. Venous Catheterization as a Diagnostic Aid in Patent Ductus Arteriosus, Tetralogy of Fallot, Ventricular Septal Defect, and Auricular Septal Defect.

L. DEXTER, F. W. HAYNES, C. S. BURWELL, E. C. EPPINGER, M. C. SOSMAN, and J. M. EVANS. *J. clin. Invest.*, 26, 561-567, May, 1947.

The authors describe intracardiac catheterization as a diagnostic aid in 7 patients with four varieties of congenital heart disease: (1) Patent ductus arteriosus: the oxygen content of the blood in the pulmonary artery was, in 1 patient, 2.2 vol.% higher than that from the right ventricle. This is taken as direct evidence of entry of arterial blood into the pulmonary artery; a less constant finding is an elevation of blood pressure in the pulmonary artery and the right ventricle. (2) Tetralogy of Fallot: pulmonary stenosis was recognized by finding a higher systolic pressure in the right ventricle than in the pulmonary artery, and a narrow pulse pressure in the latter. In another case the intracardiac catheter passed from the right ventricle to the aorta, thus demonstrating a ventricular septal defect. (3) Interventricular septal defect (Roger's disease): in 1 case the blood in the right ventricle was found to be more highly oxygenated than that in the right auricle. (4) Interauricular septal defect: cases may be diagnosed by introducing the catheter into the left auricle through the septal defect, or by finding a significant increase in the oxygen content of blood in the right auricle (left to right shunt). In 1 such case a large increase of oxygenation of blood in the right auricle was found as compared with that of the superior vena cava (more than 1.9 vol.%); the value was practically identical with that found in the femoral artery. Similar findings to those in group 4 can be seen in tricuspid insufficiency associated with interventricular septal defect, and in the rare cases where a pulmonary vein empties into the right auricle.

A. I. Suhecki

**Venous Catheterization of the Heart. I. Indications, Technics, and Errors.** M. C. SOSMAN. *Radiology*, 48, 441-450, May, 1947.

Catheterization of the right heart is most useful in the study of hæmodynamics and in helping to establish an accurate diagnosis in congenital heart disease. In addition, the method has been used in the study of cerebral, renal, and hepatic physiology, in order to collect samples of blood directly from the jugular, renal, and hepatic veins.

From the median basilic vein in either antecubital fossa the catheter, made of woven silk, is passed upward into the axillary vein, the superior vena cava, and the right auricle. From there it may be guided into the right ventricle or, as the patient takes a deep breath, into the inferior vena cava, thence into either renal vein or into one of the hepatic veins. The direction of the tip of the catheter is controlled under intermittent fluoroscopic vision by twisting its proximal end. The tip moves with each cardiac pulsation, slightly in the auricle but much more so when the right ventricle is entered. From the right ventricle the catheter may be guided into either right or left pulmonary artery. Clotting of blood in the catheter is prevented by continuous perfusion of normal saline.

All patients have a test of basal metabolism before catheterization to determine their oxygen consumption. Arterial blood is withdrawn under oil by puncture of the femoral artery, for determination of arterial oxygen saturation. In patients with congenital heart disease, samples of blood are withdrawn from the pulmonary artery, right ventricle, right auricle, and superior vena cava, and films are taken of the catheter tip in each position. Peripheral blood flow is calculated by the direct Fick principle of dividing the oxygen consumption by the arteriovenous oxygen difference between the femoral artery and the right heart. Pulmonary flow may be estimated by dividing the oxygen consumption by the difference in oxygen content of the pulmonary artery and the femoral artery. The value of teamwork is stressed.

Examination was unsatisfactory in 13 out of 100 patients tested; causes for failure included unsatisfactory veins, spasm of vein around the catheter, kinking of an unsatisfactory catheter, and unco-operative patients. General anaesthesia is indicated only in young children. Extrasystoles were sometimes noted as the tip of the catheter passed through the tricuspid valve. In only two instances were subjective symptoms distressing enough to cause abandonment of the procedure. No evidence of thrombus formation or of damage to the endothelium of the large veins or heart has been found. Courmand has reported 1200 such examinations without fatality or serious complications from passage of the catheter.

Several radiographs, illustrating "normal" and abnormal or accidental positions of the catheter tip, add to the interest of this paper. Thus the tip is seen in an azygos vein, in an additional left-sided superior vena cava, in a coronary venous sinus, in a right-arched aorta, and (through an auricular septal defect) in a pulmonary vein.

*T. Semple*

**Venous Catheterization of the Heart. II. Results, Interpretations, and Value.** L. DEXTER. *Radiology*, 48, 451-462, May, 1947.

This paper discusses diagnostic aid obtainable in congenital heart disease by previous abstract. In auricular septal defect the catheter may be introduced through the defect or arterial blood may be found in the right auricle. The recognition of an uncomplicated interventricular septal defect depends on finding a significantly higher oxygen content of blood in the right ventricle than in the right auricle. In the tetralogy of Fallot the venous catheter may pass through the stenosed pulmonary valve into the pulmonary artery, where the pressure would be lower than that of the right ventricle, or it may pass through the septal defect and go directly into the overriding aorta. In patent ductus arteriosus, blood from the pulmonary artery has a higher oxygen content than that from the right ventricle.

With the aid of line drawings and serial radiographs the passage of the catheter is demonstrated from the superior vena cava to various positions in the representative types of congenitally abnormal heart.

*T. Semple*

**Experimental Serum Carditis and its Relationship to Rheumatic Fever.** E. F. MCKEOWN. *J. Path. Bact.*, 59, 547-555, Oct., 1947.

It has been reported by other workers that cellular infiltrations in the heart like those of rheumatic carditis have been found in 2 fatal cases of serum sickness; and that polyarteritis, like the occasional polyarteritis nodosa which may complicate rheumatic fever, may be a result of sensitization. Cardiac lesions, which show many of the histological characters of the rheumatic lesion, may also be found in the experimentally sensitized animals. The work here reported is an attempt to verify these experimental observations.

Rabbits were given 10 ml. of horse serum per kg. body weight intravenously or intraperitoneally: 17 days later 1 ml. of serum was injected intravenously to absorb circulating antibody: 2 days later the initial dose of serum was repeated; 1 week later, and in some instances after longer intervals, the animals were killed. The vascular lesions described could be found after a single injection of serum, but were more widespread in animals receiving a second dose. They were present in 88% of the animals; the coronary arteries were most often affected. The histological appearances of an inflammatory exudate surrounding and infiltrating the vessel are fully described.

Small granulomata closely resembling the Aschoff nodule of rheumatic fever were often found in the myocardium. Inflammatory nodules were also found in the endocardium, leading to fibrotic thickening. Similar lesions were found in the mitral valve and valve ring, less frequently in the aortic and tricuspid valves, and never in the pulmonary valve. The author believes that in histological structure and in site these experimental lesions are identical with those of rheumatic fever, and concludes that hypersensitivity is probably the essential mechanism in the production of the rheumatic lesion.

*Kenneth Stone*

**New Test for Hypertension due to Circulating Epinephrine.**

M. GOLDENBERG, C. H. SNYDER, and H. ARANOW. *J. Amer. med. Ass.*, 135, 971-976, Dec. 13, 1947.

The only clinically significant type of hypertension due to circulating adrenaline results from phæochromocytoma. It is suggested that this tumour may be much more common than is generally realized. The diagnosis is dependent on: (1) the typical syndrome of paroxysmal hypertension with signs of vasoconstriction, pallor, headache, vomiting, and tachycardia; hypertension may sometimes be persistent; (2) demonstration of the tumour by perirenal insufflation of air; this may not succeed as there are other sites in which chromaffin tissue may occur; (3) demonstration of circulating adrenaline in the blood, but this may be very difficult. The principle of the new procedure described is that hypertension due to circulating adrenaline will be abolished by the injection of adrenolytic compounds; hypertension due to any other cause will persist. Benzodioxane in tolerable doses are adrenolytic only, and not sympatholytic. Piperidyl methyl benzodioxane was used in a dose of 0.25 mg. per kilo intravenously. In cases of phæochromocytoma the injection of benzodioxane was followed by a fall in blood pressure which lasted for several minutes in 3 out of 4 cases. In the fourth the pressure fall was slighter. The diagnosis was confirmed at operation in all these cases. In patients with essential hypertension the blood pressure usually rose after benzodioxane, but rarely a slight and less significant fall of pressure took place. Benzodioxane produced some side-effects, such as tachycardia, flushing, palpitation, coldness of limbs, and dizziness. Fourteen patients found it unpleasant, while 44 were undisturbed by the test.

*J. McMichael*

**Studies on Plant Hypertensinase.** F. GOLLAN, E. RICHARDSON, and H. GOLDBLATT. *J. exp. Med.*, 87, 29-39, Jan. 1, 1948.

The extraction of hypertensinase from wheat bran is described. A preparation free from renin and with low toxicity was produced. This was found to cause a rise in plasma hypertensinase when injected intravenously into dogs but not when injected intramuscularly. The reaction of these animals to injections of hypertensin or renin was less marked. In dogs with experimental hypertension the blood pressure was reduced by intravenous hypertensinase, while the plasma hypertensinase level remained high, though hypertensin could be detected in the plasma. These effects were not produced by inactivated hypertensinase.

*Majorie Le Vay*

**Spinal Nerve Root Pain (Radiculitis) Simulating Coronary Occlusion: A Common Syndrome.** D. DAVIS. *Amer. Heart J.*, 35, 70-80, Jan., 1948.

More careful investigation of some cases diagnosed as coronary thrombosis reveals that they are really cases of spinal nerve root pain. The author describes 10 such patients who were under his care during 1946. The patients had described præcordial pain coming on in attacks and radiating either to the left arm or to the jaw, but a more careful probing of the history revealed that

the pains might come on in bed, after there had been certain movements of the spine, or after such acts as coughing, sneezing, or straining at stool. Pressure over the dorsal vertebræ might provoke an attack, and tenderness in the region of the costo-chondral junctions might be elicited. The diagnosis can be confirmed by the beneficial response to postural correction and manipulation of the cervico-dorsal spine. Cervico-dorsal radiculitis may also coexist with coronary disease. Recognition of the syndrome and differentiation from coronary disease may prevent much unnecessary invalidism.

*H. E. Holling*

**Vitamin E in Angina Pectoris.** D. H. MAKINSON, S. OLEESKY, and R. V. STONE. *Lancet*, 1, 102, Jan. 17, 1948.

Twenty-two patients with typical angina of effort were treated with vitamin E, phenobarbitone, aminophylline, and calcium lactate, each drug being given for 3 weeks, after which the patients were asked to compare the effects of the drugs. From this small but clinically significant series it is concluded that vitamin E is not of any therapeutic value in the routine treatment of angina pectoris. —[Authors' summary.]

**The Use of Dicumarol in Experimental Coronary Occlusion. I. The Ineffectiveness of Dicumarol when Ligation is the Method of Occlusion.** E. J. BEATTIE, E. C. CUTLER, M. FAUTEUX, T. D. KINNEY, and H. D. LEVINE. *Amer. Heart J.*, 35, 94-105, Jan., 1948.

The descending branch of the left coronary artery was crushed or ligated in 40 healthy dogs. Ligation was found to be a more certain way of producing an infarct, and for various reasons only 22 of the ligation experiments were found to be suitable for inclusion in the study. One group of these dogs was given adequate doses of dicoumarol after the ligation; a control group received no dicoumarol. The electrocardiographic and pathological changes were studied in both groups and no significant differences were found. Before applying these results to experience with human cases of coronary occlusion the limitations of the experiments must be borne in mind: (a) The coronary arteries of these dogs were healthy and therefore less likely to be the seat of an extensive thrombosis than the coronary artery of patients. (b) The experiments produced abrupt and total occlusion whereas in clinical coronary thrombosis the occlusion may be gradual. (c) Hæmorrhage after the operation was the cause of death in 3 of the dogs receiving dicoumarol and this factor would not operate in clinical work. (d) The number of satisfactory experiments is too small for statistical analysis.

*H. E. Holling*

**Rupture of the Heart Following Acute Myocardial Infarction.** R. S. DIAZ-RIVERA and A. J. MILLER. *Amer. Heart J.*, 35, 126-133, Jan., 1948.

Rupture of the heart occurred in 5 of 147 cases of myocardial infarction coming to necropsy; all 5 cases were from a group of 53 in which the infarction was acute. Rupture of the interventricular septum had been recognized ante mortem by the anginal pain followed by

the sudden appearance of a systolic murmur and the electrocardiographic changes typical of myocardial infarction and right axis deviation. In every instance of rupture of the left ventricle, clotting of the blood in the pericardium had occurred, and it was evidence that cardiac rupture resulting from acute myocardial infarction was not a cause of instantaneous death.

H. E. Holling

**Treatment of Angina Pectoris by Reduction of Basal Metabolism.** G. SCHOENEWALD. *Brit. med. J.*, 1, 251-253, Feb. 7, 1948.

The author divides cases of angina pectoris into three groups—obese, anæmic, and slim. Patients in the first two groups can be helped by weight reduction and by correction of anæmia respectively; those in the third group can be given nitroglycerin to shorten their attacks. Commenting on total surgical removal of the thyroid gland, which has not been widely practised in Britain, the author describes 3 patients treated ambulant with methylthiouracil. All were given 600 mg. daily for several weeks, with improvement in each case. It is noted that in order to reduce thyroid activity it is necessary to give much larger doses for a longer period to patients with normal thyroid activity than to those with thyrotoxicosis.

Geoffrey McComas

**The Electrocardiographic Diagnosis of Right Ventricular Hypertrophy.** G. B. MYERS, H. A. KLEIN, and B. E. STOFER. *Amer. Heart J.*, 35, 1-40, Jan., 1948.

The electrocardiographic criteria for the diagnosis of right ventricular hypertrophy have been reconsidered. A critical review of the literature is presented. Forty cases of right ventricular hypertrophy proven at necropsy were carefully studied. The authors find, as previous workers have shown, that right axis deviation in the standard leads, with depression of RST2 and RST3 and with inversion of T1 and T2, is not diagnostic of right ventricular hypertrophy. This pattern may be found in left ventricular hypertrophy and even in normal subjects when the heart is in a vertical position. [For the electrocardiographic features now considered typical of right ventricular hypertrophy the original paper must be consulted.]

H. E. Holling

**Effect of Increasing the Blood Volume and Right Atrial Pressure on the Circulation of Normal Subjects by Intravenous Infusions.** J. V. WARREN, E. S. BRANNON, H. S. WEENS, and E. A. STEAD. *Amer. J. Med.*, 4, 193-200, Feb., 1948.

A series of normal young subjects were given intravenous infusions of normal saline or 5% human serum albumin in normal saline. The amounts ranged from 750 to 1,825 ml. and were given at rates ranging from 32 to 72 ml. per minute. The increase in blood volume consistently caused a rise in right auricular pressure, but cardiac output, arterial blood pressure, and pulse rate showed no consistent changes. Variations in auricular pressure of about 125 mm. water produced no demonstrable changes in the transverse diameter of the heart. It is concluded that increasing the blood volume and

auricular pressure throws no demonstrable burden on the circulation of normal subjects. It is suggested: (a) that this may also be true of patients with cardiac failure; (b) that in them acute pulmonary oedema is precipitated by intravenous infusions because certain factors operate to cause a large portion of the administered fluid to accumulate in lungs already moderately oedematous.

R. T. Grant

**Experiences in the Management of Subacute Bacterial Endocarditis Treated with Penicillin.** P. A. TUMULTY and A. MCG. HARVEY. *Amer. J. Med.*, 4, 37-54, Jan., 1948.

Of 35 patients suffering from subacute bacterial endocarditis who were treated with penicillin 22 recovered; of these 12 remained well over periods of 3 to 36 months, 7 had some, usually mild, cardiac symptoms, one suffered from increasing heart failure, one died of cardiac and renal failure 5 months after the conclusion of treatment, and another died, after 6 months, in a mental hospital; the cause of death in the last case could not be ascertained by the authors. These patients had received penicillin treatment for 13 to 100 days, the amounts given daily varying between 200,000 and 18,000,000 units, with totals of 3,500,000 to 1,450,000,000 units. Of the 13 patients who did not recover only 4 were regarded as having received adequate treatment with penicillin; the cause of death in most of them was cardiac failure and embolism. Two died of myocardial infarction, which, in one case, was caused by a mycotic aneurysm of a coronary artery and in the other by coronary thrombosis.

The authors stress the difficulty of clinical diagnosis in the frequent absence of the classical signs, and the importance of retaining and reviewing blood cultures for 3 weeks before discarding them as sterile. The possibility of unusual causative organisms, such as the genus *Bacteroides*, is to be kept in mind. The authors consider as a "basic and minimal treatment schedule" 100,000 units of penicillin 2-hourly for 8 weeks, and assess satisfactory response mainly on clinical criteria, such as return of temperature and pulse rate to normal, improved appetite, and general well-being. If necessary, the dose of penicillin must be increased until satisfactory response is obtained. As a prophylactic measure against the development of subacute bacterial endocarditis in patients who suffer from valvular or congenital heart disease, the administration is recommended of at least 500,000 units of penicillin a day for 4 days in the case of dental extractions or other surgical procedures and manipulations which are likely to produce a transient bacteraemia.

B. Samet

**Effect of Tetraethyl Ammonium Chloride on a Mixed Type of Hypersensitive Carotid Sinus Syndrome.** R. D. TAYLOR, L. C. UNDERWOOD, and I. H. PAGE. *J. Lab. clin. Med.*, 32, 1491-1495, Dec., 1947.

The effect of the intravenous injection of atropine and of tetraethyl ammonium chloride was observed in a patient in whom pressure on the carotid sinus provoked bradycardia, fall in blood pressure, giddiness, and

syncope. Atropine prevented the slowing of the pulse rate but not the fall in blood pressure. Tetraethyl ammonium chloride prevented both the bradycardia and hypotension. The inhibition of the vegetative system by tetraethyl persisted for only 30 to 40 minutes, and the drug is therefore not recommended for treatment of this type of case.

R. T. Grant

**Hypertensive Vascular Disease: Duration of Life in a Selected Series.** D. W. BLOOD and G. A. PERERA. *Amer. J. Med.*, 4, 83-88, Jan., 1948.

In order to assess the prognosis in cases of "benign," hypertension 50 patients were studied who, when first seen, had not significant symptoms but consistently had blood pressures of over 140/90 mm. Hg. Their ages varied from 22 to 57, the average being 42, and 41 were females and 9 males. The average length of observation was 17 years and varied from 10 to 27 years. Sixteen patients died, the majority as a result of cardiovascular complications or cerebral vascular accidents; 24 were free from significant symptoms when last seen. It was not possible to correlate prognosis with initial height of blood pressure, symptoms of headache or palpitation, the presence of cardiac enlargement, albuminuria, minor electrocardiographic changes, or retinal arterio-venous compression. Symptoms of cardiac failure appeared late in the course of the disease; 8 of the 22 patients developing such symptoms died after an average of 8 years from the first symptom. On the other hand, only one of the 9 patients developing cardiac pain survived, the average duration of life from the onset of pain being 5 years.

C. Bruce Perry

**Severe Hypertension in Young Persons. A Study of 50 Cases.** R. PLATT. *Quart. J. Med.*, 27, 83-93, Jan., 1948.

As a result of investigation into the cause of 64 cases (14 more are contained in an addendum) of severe hypertension in patients under the age of 40, the author concludes that the impression that one of the outstanding features of malignant hypertension is its frequent occurrence in young adults and even in children, is erroneous. Although he did not personally select his cases, he is careful to point out that as his interest in this subject is known by practitioners he has been sent a disproportionate number of rarities. He emphasizes the great difficulty of distinguishing essential hypertension from hypertension due to demonstrable causes, and states that at times the diagnosis cannot be made with certainty

even microscopically. For example, it may be impossible to distinguish atrophic pyelonephritis with hypertension from essential hypertension with pyelonephritis. A cause of the hypertension was discovered in 48 of the 64 cases. Of the remaining 16 cases of essential hypertension only 5 were malignant. Essential malignant hypertension was not encountered in patients under the age of 34; young persons with the malignant type of hypertension are nearly always suffering from secondary hypertension, especially that due to pyelonephritis. It was thought probable that benign and malignant hypertension begin at about the same age; the ages at which they were encountered clinically in this series was 45.2 years for malignant hypertension and 53.2 years for benign hypertension.

S. Oram

**The Relationship of Chronic Alcoholism to Atherosclerosis.** S. L. WILENS. *J. Amer. med. Ass.*, 135, 1136-1139, Dec. 27, 1947.

This is a study of necropsy findings in 519 persons aged 35 or older, with chronic excessive alcoholism at Bellevue Hospital, New York, during the past 12 years. In approximately one-half of these addicts the daily consumption was known to have exceeded 1 pint (568 ml.) of whisky or its equivalent for many years. In all the others consumption was known to have been excessive for long periods of time. The incidence of atherosclerosis is compared with that in a control group of 600 consecutive necropsies of total abstainers and moderate consumers of alcohol, aged 35 or older. In the alcoholic group atherosclerosis was less common and less severe than in the control group, as also were lesions of the coronary and cerebral arteries. An explanation may be found in the fact that although three-fourths of the control group were 55 years or older at death, only one-half of the alcoholic men and one-fourth of the women survived beyond the age of 55. Of the alcoholics 28% had cirrhosis, but this did not increase the incidence of atherosclerosis. In age groups the incidence of atherosclerosis in the 423 alcoholic and 434 non-alcoholic men was almost identical. The author considers that the differences in incidence of atherosclerosis in the two groups depend not on alcoholism itself but on associated differences in age, blood pressure, and nutrition. Hypertension, diabetes, and obesity were all less common in the alcoholics. His conclusion is that substitution of alcohol for ordinary foods in the diet has no appreciable effect on the development of atherosclerosis.

Donald Hall